



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington, D.C. 20240

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Memorandum

To: Assistant Director of Resources and Planning, Bureau of Land Management
(Attn: Mike Tupper)

From: *Asst. Dir.* Chief, Division of Environmental Review, Ecological Services *Sam Bujak*

Subject: Informal Consultation on the Bureau of Land Management Vegetation Treatments
Using Aminopyralid, Fluroxypyr, and Rimsulfuron in 17 Western States

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) concurrence that the addition of three active ingredients (aminopyralid, fluroxypyr, and rimsulfuron) to the list of approved active ingredients for use by the Bureau of Land Management (BLM), is not likely to adversely affect listed species or critical habitat (Appendix A) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 -1544), as amended (ESA). We base our decision on information provided in the Biological Assessment (BA), Ecological Risk Assessments for aminopyralid, fluroxypyr, and rimsulfuron, and BLM's Draft Programmatic Environmental Impact Statement (PEIS).

History and Project Description

In 2007, BLM consulted on 18 herbicide active ingredients for use in vegetation treatments in 17 western states. In order to have increased flexibility and options when designing herbicide treatment programs, BLM is proposing to add aminopyralid, fluroxypyr, and rimsulfuron for use on their lands. These three herbicides have been selected based on their effectiveness at controlling certain noxious invasive plants and other target weed species with relatively low environmental risk to fish and wildlife. Specifically, aminopyralid is a post-emergence selective herbicide that is used to control invasive annual, biennial, and perennial weed species, as well as agronomic broadleaf weeds; fluroxypyr is a selective, post-emergence herbicide that is used to control certain annual and perennial weeds, including broadleaf weeds that are resistant to sulfonyleurea herbicides, such as kochia; and rimsulfuron is a selective, acetolactate synthase-inhibiting herbicide that inhibits the biosynthesis of certain amino acids; species targeted by rimsulfuron include winter annual grasses, such as cheatgrass and medusahead rye.

Proposed vegetation treatments using aminopyralid, fluroxypyr, and rimsulfuron could occur anywhere on the 248 million acres of BLM lands in the western U.S., including Alaska, although actual treatment methods, acres treated, and treatment locations would be determined at the local BLM field level (Table 1).

Table 1. Herbicide Characteristics, Target Vegetation and Projected Future Use (as a percentage of all acres treated), and Areas Where Registered Use is Appropriate for Aminopyralid, Fluroxypyr, and Rimsulfuron

Herbicide	Projected Future Use (percent)	Areas Where Registered Use is Appropriate					
		Rangeland	Forestland	Riparian and Aquatic	Oil, Gas, and Minerals	ROW	Recreation and Cultural Resources
Aminopyralid	10	•	•		•	•	•
Fluroxypyr	1	•	•		•	•	•
Rimsulfuron	16	•	•		•	•	•

Conservation Measures

As a part of the proposed action, BLM has identified Standard Operating Procedures (SOPs) and conservation measures that will be incorporated into local level projects. These SOPs and conservation measures are designed to minimize risks to federally listed plants and animals and designated critical habitat. They include the following:

- Prevention measures during project planning, development, and revegetation phases to minimize the risk of introducing or spreading noxious weeds.
- Herbicide treatment planning, which includes evaluation of the need for chemical treatments and their potential for impact on the environment, and development of an operational plan that includes herbicide buffers near water bodies; information on project specifications, key personnel responsibilities and communication, safety, and spill and response; and emergency procedures.
- Procedures specific to site revegetation after treatments to promote establishment and/or recovery by the native plant community.
- Special precautions to minimize impacts to special status species, including a survey of each project site for listed and proposed species prior to vegetation treatment activities and associated consultation with the Service.
- Additional species/taxa specific measures as identified in Appendix B of this memorandum.

In addition to the conservation measures above, BLM has identified pesticide-specific buffers that are to be used under different application for the protection of threatened, endangered, and proposed plant species (Appendix C).

BLM's proposed action authorizes the use of the three active ingredients at the programmatic level. However, as described in the BA, BLM field offices will consult with the Service at the local level prior to implementation of specific vegetation treatment projects that utilize aminopyralid, fluroxypyr, and rimsulfuron (Appendix D). This process will include a site-specific analysis of potential effects to federally-listed species or critical habitat from proposed

determine more specifically which species might be impacted by the proposed treatments, the nature and extent of potential impacts, and if additional conservation measures are needed to reduce potential adverse effects to these species. It is through BLM's adherence to conservation measures identified in their BA and the requirement for local consultations to occur prior to any use of the three active ingredients, that we concur that the proposed action is not likely to adversely affect threatened or endangered species under the jurisdiction of the Service. If any subsequent action does not conform to these standards it may be necessary to conduct formal consultation on that particular action.

This concludes informal consultation on the proposal to add three active ingredients, aminopyralid, fluroxypyr and rimsulfuron, to the list of approved active ingredients for use on BLM lands. Therefore, unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, no further action pursuant to the ESA is necessary at the National level. If you have any questions please contact George Noguchi of my office at (703) 358-1857.

Appendix A
Species Addressed in BLM's Biological Assessment

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Plants						
<i>Acanthomintha ilicifolia</i>	San Diego thornmint	T ²	CA	Yes	None	No
<i>Allium munzii</i>	Munz's onion	E	CA	Yes	63 acres	No
<i>Ambrosia pumila</i>	San Diego ambrosia	E	CA	Yes	None	No
<i>Amsonia kearneyana</i>	Kearney's blue-star	E	AZ	No	--	Yes
<i>Arabis mcdonaldiana</i>	McDonald's rock-cress	E	CA, OR	No	--	Yes
<i>Arctomecon humilis</i>	Dwarf bear-poppy	E	UT	No	--	Yes
<i>Arctostaphylos morroensis</i>	Morro manzanita	T	CA	No	--	Yes
<i>Arctostaphylos myrtifolia</i>	Ione manzanita	T	CA	No	--	No
<i>Arenaria paludicola</i>	Marsh sandwort	E	OR	No	--	Yes
<i>Argemone pleiacantha</i> ssp. <i>pinnatisecta</i>	Sacramento prickly poppy	E	NM	No	--	Yes
<i>Asclepias welshii</i>	Welsh's milkweed	T	AZ, UT	Yes	1,760 acres (UT)	Yes
<i>Astragalus albens</i>	Cushenbury milk-vetch	E	CA	Yes	839 acres	Yes
<i>Astragalus ampullarioides</i>	Shivwitz milk-vetch	E	UT	Yes	819 acres	Yes
<i>Astragalus applegatei</i>	Applegate's milk-vetch	E	OR	No	--	Yes
<i>Astragalus brauntonii</i>	Braunton's milk-vetch	E	CA	Yes	None	Yes
<i>Astragalus desereticus</i>	Deseret milk-vetch	T	UT	No	--	No
<i>Astragalus holmgreniorum</i>	Holmgren milk-vetch	E	AZ, UT	Yes	362 acres (AZ); 2,447 acres (UT)	Yes
<i>Astragalus humillimus</i>	Mancos milk-vetch	E	CO, NM	No	--	Yes
<i>Astragalus jaegerianus</i>	Lane Mountain milk-vetch	E	CA	Yes	9,897 acres	No
<i>Astragalus lentiginosus</i> var. <i>coachellae</i>	Coachella Valley milk-vetch	E	CA	Yes	3,494 acres	No
<i>Astragalus lentiginosus</i> var. <i>piscinensis</i>	Fish Slough milk-vetch	T	CA	Yes	5,430 acres	Yes
<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	Peirson's milk-vetch	T	CA	Yes	20,779 acres	No
<i>Astragalus montii</i>	Heliotrope milk-vetch	T	UT	Yes	None	Yes
<i>Astragalus osterhoutii</i>	Osterhout milk-vetch	E	CO	No	--	Yes
<i>Astragalus phoenix</i>	Ash Meadows milk-vetch	T	NV	Yes	458 acres	Yes
<i>Astragalus tricarinatus</i>	Triple-ribbed milk-vetch	E	CA	No	--	No
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley crownscale	E	CA	Yes	None	No
<i>Baccharis vanessae</i>	Encinitis baccharis	T	CA	No	--	No
<i>Berberis nevini</i>	Nevin's barberry	E	CA	Yes	5 acres	No
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	T	CA	Yes	53 acres	No
<i>Calyptridium pulchellum</i>	Mariposa pussypaws	T	CA	No	No	No
<i>Calystegia stebbinsii</i>	Stebbins' morning-glory	E	CA	No	--	Yes
<i>Camissonia benitensis</i>	San Benito evening-primrose	T	CA	No	--	Yes
<i>Carex specuicola</i>	Navajo sedge	T	UT	Yes	None	Yes
<i>Castilleja campestris</i> ssp. <i>succulenta</i>	Fleshy owl's-clover	T	CA	Yes	289 acres	Yes
<i>Caulanthus californicus</i>	California jewelflower	E	CA	No	--	Yes

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Plants (Cont.)						
<i>Ceanothus ferrisae</i>	Coyote ceanothus	E	CA	No	No	Yes
<i>Ceanothus roderickii</i>	Pine Hill ceanothus	E	CA	No	--	Yes
<i>Centaureum namophilum</i>	Spring-loving centaury	T	CA, NV	Yes	806 acres (NV)	Yes
<i>Chamaesyce hooveri</i>	Hoover's spurge	T	CA	Yes	38 acres	Yes
<i>Chlorogalum purpureum</i> var. <i>purpureum</i>	Purple amole	T	CA	Yes	None	No
<i>Chorizanthe howellii</i>	Howell's spineflower	E	CA	No	--	Yes
<i>Chorizanthe orcuttiana</i>	Orcutt's spineflower	E	CA	No	--	No
<i>Chorizanthe pungens</i> var. <i>pungens</i>	Monterey spineflower	T	CA	Yes	1,204 acres	Yes
<i>Chorizanthe rogusta</i> var. <i>robusta</i>	Robust spineflower	E	CA	No	--	No
<i>Cirsium fontinale</i> var. <i>obispoense</i>	Chorro Creek bog thistle	E	CA	No	--	Yes
<i>Cirsium scariosum</i> var. <i>loncholepis</i>	La Graciosa thistle	E	CA	Yes	None	No
<i>Clarkia springvillensis</i>	Springville clarkia	T	CA	No	--	No
<i>Coryphantha robbinsorum</i>	Cochise pincushion cactus	T	AZ	No	--	Yes
<i>Coryphantha scheeri</i> var. <i>robustispina</i>	Pima pineapple cactus	E	AZ	No	--	No
<i>Coryphantha sneedii</i> var. <i>leei</i>	Lee pincushion cactus	T	NM	No	--	Yes
<i>Coryphantha sneedii</i> var. <i>sneedii</i>	Sneed pincushion cactus	E	NM	No	--	Yes
<i>Cycladenia humilis</i> var. <i>jonesii</i>	Jones cycladenia	T	CA, AZ, UT	No	--	Outline
<i>Deinandra</i> (= <i>hemizonia</i>) <i>conjugens</i>	Otay tarplant	T	CA	Yes	None	Yes
<i>Deinandra increscens</i> ssp. <i>villosa</i>	Gaviota tarplant	E	CA	Yes	None	No
<i>Delphinium luteum</i>	Yellow larkspur	E	CA	Yes	None	No
<i>Dodecahema leptoceras</i>	Slender-horned spineflower	E	CA	No	--	No
<i>Dudleya cymosa</i> ssp. <i>marcescens</i>	Marcescent dudleya	T	CA	No	--	Yes
<i>Echinocactus horizonthalonius</i> var. <i>nicholli</i>	Nichol's Turk's head cactus	E	AZ	No	--	Yes
<i>Echinocereus fendleri</i> var. <i>kuenzleri</i>	Kuenzler hedgehog cactus	E	NM	No	--	Yes
<i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i>	Arizona hedgehog cactus	E	AZ	No	--	Yes
<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Acuna cactus	E	AZ	Proposed	4,625 acres (proposed)	No
<i>Enceliopsis nudicaulis</i> var. <i>corrugata</i>	Ash Meadows sunray	T	NV	Yes	773 acres	Yes
<i>Eremalche kernensis</i>	Kern mallow	E	CA	No	--	Yes
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woolly-star	E	CA	No	--	No
<i>Erigeron decumbens</i> var. <i>decumbens</i>	Willamette daisy	E	OR	Yes	208 acres	Yes
<i>Erigeron parishii</i>	Parish's daisy	T	CA	Yes	945 acres	Yes
<i>Erigeron rhizomatus</i>	Zuni fleabane	T	AZ, NM	No	--	Yes
<i>Eriodictyon altissimum</i>	Indian Knob mountain balm	E	CA	No	--	Yes

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Plants (Cont.)						
<i>Eriodictyon capitatum</i>	Lompoc yerba santa	E	CA	Yes	None	No
<i>Eriogonum apricum</i>	Ione buckwheat	E	CA	No	--	No
<i>Eriogonum gypsophilum</i>	Gypsum wild-buckwheat	T	NM	Yes	537 acres	Yes
<i>Eriogonum ovalifolium</i> var. <i>vineum</i>	Cushenbury buckwheat	E	CA	Yes	423 acres	Yes
<i>Eriogonum ovalifolium</i> var. <i>williamsiae</i>	Steamboat buckwheat	E	NV	No	--	Yes
<i>Eriogonum pelinophilum</i>	Clay-loving wild-buckwheat	E	CO	Yes	None	Yes
<i>Erysimum menziesii</i>	Menzies' wallflower	E	CA	No	--	Yes
<i>Eutrema penlandii</i>	Penland alpine fen mustard	T	CO	No	--	No
<i>Fremontodendron californicum</i> ssp. <i>decumbens</i>	Pine Hill flannelbush	E	CA	No	--	Yes
<i>Fremontodendron mexicanum</i>	Mexican flannelbush	E	CA	Yes	224 acres	No
<i>Fritillaria gentneri</i>	Gentner's fritillary	E	OR	No	--	Yes
<i>Galium californicum</i> ssp. <i>sierrae</i>	El Dorado bedstraw	E	CA	No	--	Yes
<i>Gaura neomexicana</i> var. <i>coloradensis</i>	Colorado butterfly plant	T	CO, WY	Yes	None	Outline
<i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	Monterey gilia	E	CA	No	--	Yes
<i>Grindelia fraxino-pratensis</i>	Ash Meadows gumplant	T	CA, NV	Yes	292 acres (CA)	Yes
<i>Hackelia venusta</i>	Showy stickseed	E	OR	No	--	Yes
<i>Hedeoma todsenii</i>	Todsen's pennyroyal	E	NM	Yes	None	Yes
<i>Helianthus paradoxus</i>	Pecos sunflower	T	NM	Yes	None	Yes
<i>Howellia aquatilis</i>	Water howellia	T	CA, ID, MT, OR	No	--	Yes
<i>Ipomopsis polyantha</i>	Pagosa skyrocket	E	CO	Yes	42 acres	Outline
<i>Ivesia kingii</i> var. <i>eremica</i>	Ash Meadows ivesia	T	NV	Yes	335 acres	Yes
<i>Ivesia webberi</i>	Webber ivesia	T	CA, NV	Yes	228 acres (CA); 66 acres (NV)	No
<i>Lasthenia conjugens</i>	Contra Costa goldfields	E	CA	Yes	None	Yes
<i>Layia carnosa</i>	Beach layia	E	CA	No	--	Yes
<i>Lepidium barnebyanum</i>	Barneby ridge-cress	E	UT	No	--	Yes
<i>Lepidium papilliferum</i>	Slickspot peppergrass	T	ID	Proposed	57,756 acres (proposed)	No
<i>Lesquerella congesta</i>	Dudley Bluffs bladderpod	T	CO	No	--	Yes
<i>Lesquerella tumulosa</i>	Kodachrome bladderpod	E	UT	No	--	Outline
<i>Lilaeopsis schaffneriana</i> var. <i>recurva</i>	Huachuca water-umbel	E	AZ	Yes	484 acres	No
<i>Lilium occidentale</i>	Western lily	E	CA, OR	No	--	Yes
<i>Limnanthes floccosa</i> ssp. <i>californica</i>	Butte County meadowfoam	E	CA	Yes	None	Yes
<i>Limnanthes floccosa</i> ssp. <i>grandiflora</i>	Large-flowered woolly meadowfoam	E	OR	Yes	None	Yes
<i>Lomatium bradshawii</i>	Bradshaw's desert-parsley	E	OR	No	--	Yes

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Plants (Cont.)						
<i>Lomatium cookii</i>	Cook's lomatium	E	OR	Yes	1,621 acres	Yes
<i>Lupinus sulphureus</i> ssp. <i>kincaidii</i>	Kincaid's lupine	T	OR, WA	Yes	34 acres (OR)	Yes
<i>Mentzelia leucophylla</i>	Ash Meadows blazingstar	T	NV	Yes	509 acres	Yes
<i>Mirabilis macfarlanei</i>	MacFarlane's four-o'clock	T	ID, OR	No	--	Yes
<i>Monardella viminea</i>	Willowy monardella	E	CA	Yes	No	No
<i>Monolopia congdonii</i> (formerly <i>Lembertia congdonii</i>)	San Joaquin woolly-threads	E	CA	No	--	Yes
<i>Neostapfia colusana</i>	Colusa grass	T	CA	Yes	7 acres	Yes
<i>Nitrophila mohavensis</i>	Amargosa niterwort	E	CA, NV	Yes	1,200 acres (CA)	Yes
<i>Opuntia treleasei</i>	Bakersfield cactus	E	CA	No	--	Yes
<i>Orcuttia californica</i>	California Orcutt grass	E	CA	No	--	Yes
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	T	CA	Yes	289 acres	Yes
<i>Orcuttia pilosa</i>	Hairy Orcutt grass	E	CA	Yes	18 acres	Yes
<i>Orcuttia tenuis</i>	Slender Orcutt grass	T	CA	Yes	17,077 acres	Yes
<i>Oxytheca parishii</i> var. <i>goodmaniana</i>	Cushenbury oxytheca	E	CA	Yes	84 acres	Yes
<i>Pediocactus bradyi</i>	Brady pincushion cactus	E	AZ	No	--	Yes
<i>Pediocactus despainii</i>	San Rafael cactus	E	NM, UT	No	--	Yes
<i>Pediocactus knowltonii</i>	Knowlton's cactus	E	CO, NM	No	--	Yes
<i>Pediocactus peeblesianus</i> var. <i>fickeiseniae</i>	Fickeisen plains cactus	E	AZ	Proposed	Proposed	No
<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>	Peebles Navajo cactus	E	AZ	No	--	Yes
<i>Pediocactus sileri</i>	Siler pincushion cactus	T	AZ, UT	No	--	Yes
<i>Pediocactus winkleri</i>	Winkler cactus	T	UT	No	--	Yes
<i>Penstemon debilis</i>	Parachute beardtongue	T	CO	Yes	13,912 acres	Outline
<i>Penstemon haydenii</i>	Blowout penstemon	E	WY	No	--	Yes
<i>Penstemon penlandii</i>	Penland beardtongue	E	CO	No	--	Yes
<i>Phacelia argillacea</i>	Clay phacelia	E	UT	No	--	No
<i>Phacelia formosula</i>	North Park phacelia	E	CO	No	--	Yes
<i>Phacelia submutica</i>	DeBeque phacelia	T	CO	Yes	22,013 acres	Outline
<i>Phlox hirsuta</i>	Yreka phlox	E	CA	No	--	Yes
<i>Physaria obcordata</i>	Dudley Bluffs (Piceance) twinpod	T	CO, UT	No	--	Yes
<i>Piperia yadonii</i>	Yadon's piperia	E	CA	Yes	No	Yes
<i>Plagiobothrys hirtus</i>	Rough popcornflower	E	OR	No	--	Yes
<i>Plantanthera praeclara</i>	Western prairie fringed orchid	T	MT, WY	No	--	Yes
<i>Pogogyne nudiuscula</i>	Otay mesa-mint	E	CA	No	--	Yes
<i>Primula maguirei</i>	Maguire primrose	T	UT	No	--	Yes
<i>Pseudobahia bahiifolia</i>	Hartweg's golden sunburst	E	CA	No	--	No

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Plants (Cont.)						
<i>Pseudobahia peirsonii</i>	San Joaquin adobe sunburst	T	CA	No	--	No
<i>Purshia subintegra</i>	Arizona cliff-rose	E	AZ	No	--	Yes
<i>Ranunculus aestivalis</i>	Autumn buttercup	E	UT	No	--	Yes
<i>Schoenocrambe argillacea</i>	Clay reed-mustard	T	NM, UT	No	--	Yes
<i>Schoenocrambe barnebyi</i>	Barneby reed-mustard	E	ID, UT	No	--	Yes
<i>Schoenocrambe suffrutescens</i>	Shrubby reed-mustard	E	UT	No	--	Yes
<i>Sclerocactus brevispinus</i>	Pariette cactus	T	UT	No	--	Outline
<i>Sclerocactus glaucus</i>	Colorado hookless cactus	T	CO	No	--	Outline
<i>Sclerocactus mesae-verdae</i>	Mesa Verde cactus	T	CO, NM, UT	No	--	Yes
<i>Sclerocactus wetlandicus</i>	Uinta Basin hookless cactus	T	UT	No	--	Outline
<i>Sclerocactus wrightiae</i>	Wright fishhook cactus	E	UT	No	--	Yes
<i>Senecio layneae</i>	Layne's butterweed	T	CA	No	--	Yes
<i>Sidalcea keckii</i>	Keck's checker-mallow	E	CA	Yes	0.2 acres	No
<i>Sidalcea nelsoniana</i>	Nelson's checker-mallow	T	OR	No	--	Yes
<i>Sidalcea oregana</i> var. <i>calva</i>	Wenatchee Mountains checker-mallow	E	OR	Yes	None	Yes
<i>Silene spaldingii</i>	Spalding's catchfly	T	ID, MT, OR, WA	No	--	Yes
<i>Sphaeralcea gierischii</i>	Gierisch mallow	E	AZ, UT	Yes	9,406 acres (AZ) 1,982 acres (UT)	No
<i>Spiranthes delitescens</i>	Canelo Hills ladies'-tresses	E	AZ	No	--	No
<i>Spiranthes diluvialis</i>	Ute ladies'-tresses	T	CO, ID, MT, NV, OR, UT, WY, NE, WA	No	--	Yes
<i>Stephanomeria malheurensis</i>	Malheur wire-lettuce	E	OR	Yes	103 acres	Yes
<i>Streptanthus albidus</i> ssp. <i>albidus</i>	Metcalf Canyon jewelflower	E	CA	No	--	Yes
<i>Thelypodium howellii</i> ssp. <i>spectabilis</i>	Howell's spectacular thelypody	T	OR	No	--	Yes
<i>Townsendia aprica</i>	Last Chance townsendia	T	UT	No	--	Yes
<i>Tuctoria greenei</i>	Greene's tuctoria	E	CA	Yes	7.2 acres	Yes
<i>Verbena californica</i>	Red Hills vervain	T	CA	No	--	No
<i>Yermo xanthocephalus</i>	Desert yellowhead	T	WY	Yes	357 acres	Outline
Mollusks						
<i>Assiminea pecos</i>	Pecos assiminea snail	E	NM	Yes	No	No
<i>Helminthoglypta walkeriana</i>	Morro shoulderband snail	E	CA	Yes	5 acres	Yes
<i>Juturnia kosteri</i>	Koster's springsnail	E	NM	Yes	No	No
<i>Lanx</i> sp.	Banbury Springs limpet	E	ID	No	--	Yes
<i>Oxyloma haydeni kanabensis</i>	Kanab ambersnail	E	AZ, UT	No	--	Yes
<i>Physa natricina</i>	Snake River physa snail	E	ID	No	--	Yes

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Mollusks (Cont.)						
<i>Pyrgulopsis bruneauensis</i>	Bruneau Hot springsnail	E	ID	No	--	Yes
<i>Pyrgulopsis neomexicana</i>	Socorro springsnail	E	NM	No	--	Yes
<i>Pyrgulopsis roswellensis</i>	Roswell springsnail	E	NM	Yes	No	No
<i>Taylorconcha serpenticola</i>	Bliss Rapids snail	T	ID	No	--	Yes
<i>Tryonia alamosae</i>	Alamosa springsnail	E	NM	No	--	Yes
Arthropods						
<i>Ambrysus amargosus</i>	Ash Meadows naucorid	T	NV	Yes	None	Yes
<i>Boloria acrocneuma</i>	Uncompahgre fritillary butterfly	E	CO	No	--	Yes
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp	E	CA	Yes	7 acres	Yes
<i>Branchinecta longiantenna</i>	Longhorn fairy shrimp	E	CA	Yes	31 acres	Yes
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	T	CA, OR	Yes	4,122 acres (CA); 423 acres (OR)	Yes
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	T	CA	Yes	None	Yes
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	E	CA	Yes	11,444 acres	Yes
<i>Euphydryas editha taylori</i>	Taylor's checkerspot butterfly	E	OR	Yes	None	No
<i>Euproserpinus euterpe</i>	Kern primrose sphinx moth	T	CA	No	--	Yes
<i>Gammarus desperatus</i>	Noel's amphipod	E	NM	Yes	None	No
<i>Hesperia leonardus montana</i>	Pawnee montane skipper	T	CO	No	--	Yes
<i>Icaricia icarioides fenderi</i>	Fender's blue butterfly	E	OR	Yes	249 acres	Yes
<i>Lepidurus packardii</i>	Vernal pool tadpole shrimp	E	CA	Yes	15,749 acres	Yes
<i>Pseudocopaeodes eunus obscurus</i>	Carson wandering skipper	E	CA, NV	No	--	Yes
<i>Speyeria zerene hippolyta</i>	Oregon silverspot butterfly	T	OR	Yes	None	Yes
<i>Thermosphaeroma thermophilus</i>	Socorro isopod	E	NM	No	--	No
Fishes						
<i>Acipenser medirostris</i>	Green sturgeon (Southern DPS) ⁴	T	CA, OR	Yes	794 acres (CA); 173 acres (OR/WA) 1.4 miles (CA); 0.1 miles (OR/WA)	No
<i>Acipenser transmontanus</i>	White sturgeon (Kootenia River population)	E	ID, MT	Yes	42 acres (ID)	Yes
<i>Catostomus microps</i>	Modoc sucker	E	CA	Yes	None	No
<i>Catostomus santaanae</i>	Santa Ana sucker	T	CA	Yes	26 acres	No
<i>Catostomus warnerensis</i>	Warner sucker	T	CA, NV, WA	Yes	None	Yes

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
<i>Chasmistes brevirostris</i>	Shortnose sucker	E	CA, OR	Yes	9 miles stream, 1,390 acres lake (OR)	Yes
<i>Chasmistes cujus</i>	Cui-ui	E	NV	No	--	Yes
<i>Chasmistes liorus</i>	June sucker	E	UT	Yes	None	Yes
<i>Crenichthys baileyi baileyi</i>	White River springfish	E	NV	Yes	1 acre	Yes
<i>Crenichthys baileyi grandis</i>	Hiko White River springfish	E	NV	Yes	None	Yes
<i>Crenichthys nevadae</i>	Railroad Valley springfish	T	NV	Yes	129 acres	Yes
<i>Cyprinella formosa</i>	Beautiful shiner	T	AZ, NM	Yes	None	Yes
<i>Cyprinodon diabolis</i>	Devil's Hole pupfish	E	NV	No	--	Yes
<i>Cyprinodon macularius</i>	Desert pupfish	E	AZ, CA	Yes	485 acres (CA)	Yes
<i>Cyprinodon nevadensis mionectes</i>	Ash Meadows Amargosa pupfish	E	NV	Yes	62 acres	Yes
<i>Cyprinodon nevadensis pectoralis</i>	Warm Springs pupfish	E	NV	No	--	Yes
<i>Cyprinodon radiusus</i>	Owens pupfish	E	CA	No	--	Yes
<i>Deltistes luxatus</i>	Lost River sucker	E	CA, OR	Yes	351 acres (OR)	Yes
<i>Empetrichthys latos</i>	Pahrump poolfish	E	NV	No	--	Yes
<i>Eremichthys acros</i>	Desert dace	T	NV	Yes	1,955 acres	Yes
<i>Eucyclogobius newberryi</i>	Tidewater goby	E	CA	Yes	None	Yes
<i>Gambusia nobilis</i>	Pecos gambusia	E	NM	No	--	Yes
<i>Gasterosteus aculeatus williamsoni</i>	Unarmored threespine stickleback	E	CA	No	--	Yes
<i>Gila bicolor mohavensis</i>	Mohave tui chub	E	CA	No	--	Yes
<i>Gila bicolor snyderi</i>	Owens tui chub	E	CA	Yes	None	Yes
<i>Gila bicolor ssp.</i>	Hutton tui chub	T	OR	No	--	Yes
<i>Gila boraxobius</i>	Borax Lake chub	E	OR	Yes	320 acres	Yes
<i>Gila cypha</i>	Humpback chub	E	AZ, CO, UT, WY	Yes	1,953 acres (UT); 323 acres (CO)	Yes
<i>Gila elegans</i>	Bonytail chub	E	AZ, CA, CO, NV, UT, WY	Yes	6,214 acres (AZ); 1,480 acres (CA); 323 acres (CO); 1,953 acres (UT)	Yes
<i>Gila intermedia</i>	Gila chub	E	AZ, NM	Yes	1,911 acres (AZ)	No
<i>Gila robusta jordani</i>	Pahrana gat roundtail chub	E	NV	No	--	Yes
<i>Gila seminuda</i>	Virgin River chub	E	AZ, NV, UT	Yes	879 acres (AZ); 818 acres (NV); 420 acres (UT)	Yes
<i>Hybognathus amarus</i>	Rio Grande silvery minnow	E	NM	Yes	96 acres	Yes
<i>Hypomesus transpacificus</i>	Delta smelt	T	CA	Yes	1,752 acres	Yes
<i>Lepidomeda albivallis</i>	White River spinedace	E	NV	Yes	None	Yes

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
<i>Lepidomeda mollispinis pratensis</i>	Big Spring spinedace	T	NV	Yes	32 acres	Yes
<i>Lepidomeda vittata</i>	Little Colorado spinedace	T	AZ	Yes	None	Yes
<i>Meda fulgida</i>	Spikedace	E	AZ, NM	Yes	41 miles (AZ); 12 miles (NM)	Yes
<i>Moapa coriacea</i>	Moapa dace	E	NV	No	--	Yes
<i>Notropis girardi</i>	Arkansas River shiner	T	NM	Yes	None	No
<i>Notropis simus pecosensis</i>	Pecos bluntnose shiner	T	NM	Yes	293 acres	Yes
<i>Oncorhynchus clarki henshawi</i>	Lahontan cutthroat trout	T	CA, CO, NV, OR, UT	No	--	Yes
<i>Oncorhynchus clarki stomias</i>	Greenback cutthroat trout	T	CO	No	--	Yes
<i>Oncorhynchus gilae</i>	Gila trout	T	AZ, NM	No	--	Yes
<i>Oncorhynchus keta</i>	Chum salmon					
	Columbia River ESU ⁵	T	OR	Yes	<1 mile (WA)	No
	Hood Canal Summer-run ESU	T	OR	Yes	None	Yes
<i>Oncorhynchus kisutch</i>	Coho salmon					
	Central California Coast ESU	E	CA, OR	Yes	NA	Yes
	Oregon Coast ESU	T	OR	Yes	688 miles	No
	Southern Oregon/Northern California Coasts ESU	T	CA, OR	Yes	NA	No
	Lower Columbia River ESU	T	OR	Proposed	--	Yes
<i>Oncorhynchus mykiss</i>	Steelhead Trout					
	Southern California DPS	E	CA	Yes	1 mile	Yes
	South Central California Coast DPS	T	CA	Yes	9 miles	Yes
	California Central Valley DPS	T	CA	Yes	56 miles	No
	Northern California DPS	T	CA	Yes	125 miles	No
	Central California Coast DPS	T	CA	Yes	4 miles	No
	Snake River Basin DPS	T	ID, OR	Yes	147 miles (ID); 24 miles (OR); 7 miles (WA)	No
	Upper Willamette River DPS	T	OR	Yes	42 miles (OR)	Yes
	Upper Columbia River DPS	T	OR	Yes	4 miles (WA)	Yes
	Lower Columbia River DPS	T	OR	Yes	16 miles (OR); 2 miles (WA)	Yes
Middle Columbia River DPS	T	OR	Yes	324 miles (OR); 21 miles (WA)	Yes	

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
<i>Oncorhynchus nerka</i>	Sockeye salmon					
	Snake River, Idaho ESU	E	ID, OR	Yes	None	No
<i>Oncorhynchus tshawytscha</i>	Chinook salmon					
	California Coastal ESU	T	CA	Yes	63 miles	No
	Central Valley Spring-run ESU	T	CA	Yes	32 miles	No
	Sacramento River Winter-run ESU	E	CA, OR	Yes	NA	No
	Snake River Fall-run ESU	T	ID, OR	Yes	NA	No
	Snake River Spring/Summer-run ESU	T	ID, OR	Yes	NA	No
	Lower Columbia River ESU	T	OR	Yes	8 miles (OR/WA)	Yes
	Upper Willamette River ESU	T	OR	Yes	37 miles (OR)	Yes
Upper Columbia River Spring-run ESU	E	OR	Yes	1 mile (WA)	Yes	
<i>Oregonichthys crameri</i>	Oregon chub	T	OR	Yes	None	Yes
<i>Plagopterus argentissimus</i>	Woundfin	E	AZ, NV, NM, UT	Yes	879 acres (AZ); 420 acres (UT)	Yes
<i>Poeciliopsis occidentalis</i>	Gila topminnow	E	AZ, NM	No	--	Yes
<i>Ptychocheilus lucius</i>	Colorado pikeminnow	E, XN	AZ, CA, CO, NM, UT, WY	Yes	2,644 acres (CO); 67 acres NM; 5,119 acres (UT)	Yes
<i>Rhinichthys osculus lethoporus</i>	Independence Valley speckled dace	E	NV	No	--	Yes
<i>Rhinichthys osculus nevadensis</i>	Ash Meadows speckled dace	E	NV	Yes	60 acres	Yes
<i>Rhinichthys osculus oligoporus</i>	Clover Valley speckled dace	E	NV	No	--	Yes
<i>Rhinichthys osculus ssp.</i>	Foskett speckled dace	T	OR	No	--	Yes
<i>Rhinichthys osculus thermalis</i>	Kendall Warm Springs dace	E	WY	No	--	Yes
<i>Salvelinus confluentus</i>	Bull trout	T, XN	ID, MT, NV, OR	Yes	7,669 acres, 907 miles (ID); 2,048 acres, 210 miles (OR); 25 miles (MT); 12 miles (NV)	Yes
<i>Scaphirhynchus albus</i>	Pallid sturgeon	E	CO, MT, WY	No	--	Yes
<i>Thaleichthys pacificus</i>	Pacific eulachon (Southern DPS)	T	CA, OR	Yes	0.3 miles (OR/WA)	No
<i>Tiaroga cobitis</i>	Loach minnow	E	AZ, NM	Yes	41 miles (AZ); 13 miles (NM)	Yes

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
<i>Xyrauchen texanus</i>	Razorback sucker	E	AZ, CA, CO, NM, NV, UT, WY	Yes	822 acres (AZ); 1,076 acres (CA); 1,996 acres (CO); 4,734 acres (UT)	Yes
Amphibians						
<i>Ambystoma californiense</i>	California tiger salamander	T, E	CA	Yes	38 acres	No
<i>Ambystoma tigrinum stebbinsi</i>	Sonora tiger salamander	E	AZ	No	--	Yes
<i>Anaxyrus canorus</i>	Yosemite toad	T	CA	Proposed	Proposed	No
<i>Batrachoseps aridus</i>	Desert slender salamander	E	CA	No	--	Yes
<i>Bufo baxteri</i>	Wyoming toad	E	WY	No	--	Yes
<i>Bufo californicus</i> (= <i>microscaphus</i>)	Arroyo toad	E	CA	Yes	453 acres	Yes
<i>Rana chiricahuensis</i>	Chiricahua leopard frog	T	AZ, NM	Yes	1,364 acres (AZ) 27 acres (NM)	Yes
<i>Rana draytonii</i>	California red-legged frog	T	CA	Yes	5,207 acres	Yes
<i>Rana muscosa</i>	Mountain yellow-legged frog (Northern DPS)	E	CA	Proposed	None	No
<i>Rana pretiosa</i>	Oregon spotted frog	T	OR	Proposed	Proposed	No
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog	E	CA	Proposed	None	No
Reptiles						
<i>Crotalus willardi obscurus</i>	New Mexican ridge-nosed rattlesnake	T	AZ, NM	Yes	None	Yes
<i>Gambelia silus</i>	Blunt-nosed leopard lizard	E	CA	No	--	Yes
<i>Gopherus agassizii</i>	Desert tortoise (Mojave population)	T	AZ, CA, NV, UT	Yes	288,069 acres (AZ); 2,720,438 acres (CA); 1,024,579 acres (NV); 96,002 acres (UT)	Yes
<i>Thamnophis eques megalops</i>	Northern Mexican garter snake	T	AZ	Proposed	Proposed	No
<i>Thamnophis gigas</i>	Giant garter snake	T	CA	No	--	Yes
<i>Thamnophis rufipunctatus</i>	Narrow-headed garter snake	T	AZ, NM	Proposed	Proposed	No
<i>Uma inornata</i>	Coachella Valley fringe-toed lizard	T	CA	Yes	2,358 acres	Yes
Birds						
<i>Brachyramphus marmoratus</i>	Marbled murrelet	T	CA, OR	Yes	85,495 acres (CA); 483,018 acres (OR)	Yes
<i>Centrocercus minimus</i>	Gunnison sage-grouse	T	CO, UT	Yes	610,000 acres (CO/UT)	No

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Birds (Cont.)						
<i>Centrocercus urophasianus</i>	Greater sage-grouse (Bi-State DPS)	PT	CA	Proposed	Proposed	No
<i>Charadrius melodus</i>	Piping plover	T	CO, MT, NM, WY	Yes	1,758 acres (MT)	Yes
<i>Charadrius nivosus nivosus</i>	Western snowy plover (Pacific population)	T	CA, OR	Yes	67 acres (CA); 273 acres (OR)	Yes
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (Western DPS)	T	AZ, CA, CO, MT, NM, NV, OR, WY, UT	Proposed	Proposed	No
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	E	AZ, CA, CO, NV, NM, UT	Yes	96 miles (AZ); 9.4 miles (CA); 20.6 miles (CO); 22 miles (NM); 19 miles (NV); 25 miles (UT)	Yes
<i>Eremophila alpestris strigata</i>	Streaked horned lark	T	OR	Yes	None	No
<i>Falco femoralis septentrionalis</i>	Northern aplomado falcon	E, XN	AZ, NM	No	--	Yes
<i>Grus americana</i>	Whooping crane	E, XN	CO, ID, MT, WY	Yes	35 acres (CO); 379 acres (ID)	Yes
<i>Gymnogyps californianus</i>	California condor	E, XN	E = CA XN = UT, AZ	Yes	3,964 acres (CA)	Yes
<i>Pipilo crissalis eremophilus</i>	Inyo California towhee	T	CA	Yes	695 acres	Yes
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	T	CA	Yes	8,862 acres	No
<i>Polysticta stelleri</i>	Steller's eider	T	AK	Yes	597 acres	Yes
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail	E	AZ, CA, NV	No	--	Yes
<i>Somateria fischeri</i>	Spectacled eider	T	AK	Yes	1 acre	Yes
<i>Sterna antillarum</i>	Least (interior) tern	E	CO, MT, NM, WY	No	--	Yes
<i>Strix occidentalis caurina</i>	Northern spotted owl	T	CA, OR	Yes	1,328,612 acres	Yes
<i>Strix occidentalis lucida</i>	Mexican spotted owl	T	AZ, CA, CO, NM, UT	Yes	795 acres (AZ); 61,994 acres (CO); 2,341 acres (NM); 1,456,144 acres (UT)	Yes
<i>Tympanachus pallidicinctus</i>	Lesser prairie-chicken	T	CO, NM, OK	No	--	No
<i>Vireo bellii pusillus</i>	Least Bell's vireo	E	CA	Yes	None	Yes
Mammals						
<i>Antilocapra americana sonoriensis</i>	Sonoran pronghorn	E, XN	AZ	No	--	Yes
<i>Brachylagus idahoensis</i>	Pygmy rabbit	E	OR	No	--	Yes

Scientific Name	Common Name	Status ¹	State ²	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Mammals (Cont.)						
<i>Canis lupus</i>	Gray wolf	E, XN	AZ, CO, ID, NM, NV, MT, OR, UT, WY	Yes	None	Yes
<i>Cynomys parvidens</i>	Utah prairie dog	T	UT	No	--	Yes
<i>Dipodomys heermanni morroensis</i>	Morro Bay kangaroo rat	E	CA	Yes	None	Yes
<i>Dipodomys ingens</i>	Giant kangaroo rat	E	CA	No	--	Yes
<i>Dipodomys merriami parvus</i>	San Bernardino Merriam's kangaroo rat	E	CA	Yes	1,030 acres	No
<i>Dipodomys nitratoides exilis</i>	Fresno kangaroo rat	E	CA	Yes	None	Yes
<i>Dipodomys nitratoides nitratoides</i>	Tipton kangaroo rat	E	CA	No	--	Yes
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	E	CA	No	--	Yes
<i>Leopardus pardalis</i>	Ocelot	E	AZ	No	--	Yes
<i>Leptonycteris curusoae yerbabuena</i>	Lesser long-nosed bat	E	AZ, NM	No	--	Yes
<i>Leptonycteris nivalis</i>	Mexican long-nosed bat	E	NM	No	--	Yes
<i>Lynx canadensis</i>	Canada lynx	T, PT	CO, ID, MT, NM, OR, UT, WY	Yes	3 acres (ID); 103,475 acres (MT); 2,531 acres (OR); 1,426 acres (WY)	Outline
<i>Microtus californicus scirpensis</i>	Amargosa vole	E	CA	Yes	3,847 acres	Yes
<i>Microtus mexicanus hualpaiensis</i>	Hualapai Mexican vole	E	AZ	No	--	Yes
<i>Mustela nigripes</i>	Black-footed ferret	E, XN	E = AZ, CO, MT, UT, WY XN = AZ, CO, MT, UT, WY	No	--	Yes
<i>Neotoma fuscipes riparia</i>	Riparian woodrat	E	CA	No	--	Yes
<i>Odocoileus virginianus leucurus</i>	Columbian white-tailed deer	E	OR	No	--	Yes
<i>Ovis canadensis nelsoni</i>	Peninsular bighorn sheep	E	CA	Yes	102,686 acres	Yes
<i>Ovis canadensis sierrae</i>	Sierra Nevada bighorn sheep	E	CA	Yes	990 acres	Yes
<i>Panthera onca</i>	Jaguar	E	AZ, NM	Proposed	Proposed	Yes
<i>Rangifer tarandus caribou</i>	Woodland caribou	E	OR	Proposed	None	Yes
<i>Sorex ornatus relictus</i>	Buena Vista Lake ornate shrew	E	CA	Yes	None	Yes
<i>Spermophilus brunneus brunneus</i>	Northern Idaho ground squirrel	T	ID	No	--	Yes
<i>Ursus arctos horribilis</i>	Grizzly bear	T	ID, MT, OR, WY	No	--	Yes
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	CA	No	--	Yes
<i>Zapus hudsonius luteus</i>	New Mexico meadow jumping mouse	E	AZ, CO, NM	Yes	4.8 acres (CO)	No

Scientific Name	Common Name	Status	State ¹	Critical Habitat	Critical Habitat on BLM Lands ³	USFWS/NMFS Recovery Plan
Mammals (Cont.)						
<i>Zapus hudsonius preblei</i>	Preble's meadow jumping mouse	T	CO, WY	Yes	6 acres (CO)	No
<p>¹ E = Federally listed as endangered; T = federally listed as threatened; PE = proposed for listing as endangered; PT = proposed for listing as threatened; and XN = experimental, non-essential population.</p> <p>² State refers to the administrative jurisdiction of the BLM state office for the state listed. Therefore, MT indicates that the species may occur in Montana, North Dakota, and/or South Dakota; NM indicates that the species may occur in New Mexico, Texas, and/or Kansas; OR indicates that the species may occur in Oregon and/or Washington; and WY indicates that the species may occur in Wyoming and/or Nebraska. Some aquatic species do not occur in all the states listed, but could still be affected by activities in those states if aquatic systems were altered.</p> <p>³ Some estimates of critical habitat are based on digital information downloaded from the USFWS critical habitat data portal (http://ecos.fws.gov/crithab/). Therefore, they may not reflect additional critical habitat that was not digitized at the time the data were downloaded.</p> <p>⁴ DPS = Distinct Population Segment.</p> <p>⁵ ESU = Evolutionarily Significant Unit.</p> <p>NA = Due to incomplete information, recent listing, or recent change in the status of critical habitat, number of acres of critical habitat on BLM-administered lands is unknown at this time.</p> <p>-- means this column is not applicable, since critical habitat has not been designated for the taxon.</p>						

Appendix B

Conservation Measures as Identified in BLM's 2015 Biological Assessment

Appendix B-1

Standard Operating Procedures (Includes Applicable Mitigation from ROD for 2007 PEIS)

Resource Element	Standard Operating Procedure
Guidance Documents	BLM Handbook H-9011-1 (Chemical Pest Control); and manuals 1112 (Safety), 9011 (Chemical Pest Control), 9012 (Expenditure of Rangeland Insect Pest Control Funds), 9015 (Integrated Weed Management), and 9220 (Integrated Pest Management).
General	<ul style="list-style-type: none"> • Prepare spill contingency plan in advance of treatment. • Conduct a pretreatment survey before applying herbicides. • Select herbicide that is least damaging to the environment while providing the desired results. • Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures. • Apply the least amount of herbicide needed to achieve the desired result. • Follow product label for use and storage. • Have licensed applicators apply herbicides. • Use only USEPA-approved herbicides and follow product label directions and “advisory” statements. • Review, understand, and conform to the “Environmental Hazards” section on the herbicide label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. • Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agriculture of densely populated areas. • Minimize the size of application areas, when feasible. • Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners. • Post treated areas and specify reentry or rest times, if appropriate. • Notify adjacent landowners prior to treatment. • Keep copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs available for review at http://www.cdms.net/. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Avoid accidental direct spray and spill conditions to minimize risks to resources. • Consider surrounding land uses before aerial spraying. • Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence). • Make helicopter applications at a target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground.

Resource Element	Standard Operating Procedure
General (cont.)	<ul style="list-style-type: none"> • Take precautions to minimize drift by not applying herbicides when winds exceed 10 mph (greater than 6 mph for aerial applications) or a serious rainfall event is imminent. • Use drift control agents and low volatile formulations. • Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas. • Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. • Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. • Turn off applied treatments at the completion of spray runs and during turns to start another spray run. • Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Clean OHVs to remove seeds.
Water Resources	<ul style="list-style-type: none"> • Consider climate, soil type, and vegetation type when developing herbicide treatment programs. • Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. • Use local historical weather data to choose the month of treatment. Considering the phenology of the target species, schedule treatments based on the condition of the water body and existing water quality conditions. • Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase soil movements, and to avoid potential stormwater runoff and water turbidity. • Review hydrogeologic maps of proposed treatment areas. Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. Minimize treating areas with high risk for groundwater contamination. • Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body. • Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies. • Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies. • Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment.
Wetlands and Riparian Areas	<ul style="list-style-type: none"> • Use a selective herbicide and a wick or backpack sprayer. • Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications.

Resource Element	Standard Operating Procedure
Vegetation	<ul style="list-style-type: none"> • Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Use native or sterile species for revegetation projects to compete with invasive species until desired vegetation establishes. • Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities. • Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, needed to maintain desirable vegetation on the treatment site. • Minimize the use of terrestrial herbicides in watersheds with downgradient ponds and streams if potential impacts to aquatic plants are identified. • Establish appropriate (herbicide-specific) buffer zones (see Tables 4-12 and 4-14 in the 2007 PEIS) around downstream water bodies, habitats, and species/populations of interest. Consult the ecological risk assessments (ERAs) prepared for the PEIS for more specific information on appropriate buffer distances under different soil, moisture, vegetation, and application scenarios.
Pollinators	<ul style="list-style-type: none"> • Complete vegetation treatments seasonally before pollinator forage plants bloom. • Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily. • Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment. • Minimize herbicide application rates. Use typical rather than maximum application rates where there are important pollinator resources. • Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources. • Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula. • Maintain special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants (if invasive species) and in their habitats.
Fish and Other Aquatic Organisms	<ul style="list-style-type: none"> • Use appropriate buffer zones based on label and risk assessment guidance. • Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to herbicide(s) used, and use spot rather than broadcast or aerial treatments. • Use appropriate application equipment/method near water bodies if the potential for off-site drift exists. • For treatment of aquatic vegetation: 1) treat only that portion of the aquatic system necessary to achieve acceptable vegetation management; 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms; and 3) follow water use restrictions presented on the herbicide label.

Resource Element	Standard Operating Procedure
Fish and Other Aquatic Organisms (cont.)	<ul style="list-style-type: none"> • Limit the use of terrestrial herbicides in watersheds with characteristics suitable for potential surface runoff that have fish-bearing streams during periods when fish are in life stages most sensitive to the herbicide(s) used. • Consider the proximity of application areas to salmonid habitat and the possible effects of herbicides on riparian and aquatic vegetation. Maintain appropriate buffer zones around salmonid-bearing streams (see Appendix C, Table C-16, of the 2007 PEIS, and recommendations in the individual ERAs). • Avoid using the adjuvant R-11[®] in aquatic environments, and either avoid using glyphosate formulations containing polyoxyethyleneamine (POEA), or seek to use formulations with the least amount of POEA, to reduce risks to aquatic organisms in aquatic environments.
Wildlife	<ul style="list-style-type: none"> • Use herbicides of low toxicity to wildlife, where feasible. • Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area. • Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife. • Avoid using glyphosate formulations that include R-11[®] in the future, and either avoid using and formulations with POEA, or seek to use the formulation with the lowest amount of POEA available, to reduce risks to amphibians. • Use appropriate buffer zones (see Tables 4-12 and 4-14 in Chapter 4 of the 2007 PEIS) to limit contamination of off-site vegetation, which may serve as forage for wildlife.
Threatened, Endangered, and Sensitive Species	<ul style="list-style-type: none"> • Survey for special status species before treating an area. Consider effects to special status species when designing herbicide treatment programs. • Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants. • Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for special status species in an area to be treated. • Implement all conservation measures for special status plant and animal species presented in the 2007 BA.

Appendix B-2

Programmatic Conservation Measures for Herbicide Treatments with Aminopyralid, Fluroxypyr, and Rimsulfuron (including measures from 2007 BA not specific to previously approved herbicides)

Species/Species Group	Programmatic Conservation Measures
Plants	<ul style="list-style-type: none"> • Follow the buffer distances specified in Chapter 4 of the BA (see Tables 4-1 and 4-2 and pages 4-129 through 4-131). • In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions). • Do not use rimsulfuron in watersheds where annual precipitation exceeds 50 inches. • In watersheds where annual precipitation exceeds 10 inches, prior to use of rimsulfuron conduct a local-level analysis of site conditions and develop suitable conservation measures for protection of TEP plant species from surface runoff. • Survey all proposed action areas within potential habitat using a botanically qualified biologist, botanist, or ecologist to determine the presence/absence of the species. • Establish site-specific no activity buffers using a qualified botanist, biologist, or ecologist in areas of occupied habitat within the proposed project area. To protect occupied habitat, do not conduct treatment activities within these buffers. • Collect baseline information on the existing condition of TEP plant species and their habitats in the proposed project area. • Establish pre-treatment monitoring programs to track the size and vigor of TEP populations and the state of their habitats. These monitoring programs would help in anticipating the future effects of vegetation treatments on TEP plant species. • Assess the need for site revegetation post-treatment to minimize the opportunity for noxious weed invasion and establishment. • Include the following in management plans: <ul style="list-style-type: none"> — Off-highway use of motorized vehicles associated with treatments should be avoided in suitable or occupied habitat. — Post-treatment monitoring should be conducted to determine the effectiveness of the project. • Do not conduct herbicide treatments in areas where TEP plant species may be subject to direct spray by herbicides during treatments. • To avoid negative effects to TEP plant species from off-site drift, surface runoff, and/or wind erosion, establish suitable buffer zones between treatment sites and populations (confirmed or suspected) of TEP plant species, and take site-specific precautions. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats that support TEP plant species. • Treated areas that are prone to downy brome or noxious weed invasions should be seeded with an appropriate seed mixture to reduce the probability of noxious weeds or other undesirable plants becoming established on the site. • In suitable habitat for TEP plant species, do not use non-native species for revegetation.

Species/Species Group	Programmatic Conservation Measures
Plants (cont.)	<ul style="list-style-type: none"> • Vehicles and other equipment used during treatment activities should be washed prior to arriving at a new location to avoid the transfer of noxious weeds. • Follow all BLM operating procedures for avoiding herbicide treatments during climatic conditions that would increase the likelihood of spray drift or surface runoff.
Aquatic Animals	<p>For treatments occurring in watersheds with TEP species or designated or undesignated critical habitat (i.e., unoccupied habitat critical to species recovery):</p> <ul style="list-style-type: none"> • Where feasible, access work site only on existing roads, and limit all travel on roads when damage to the road surface will result or is occurring. • Where TEP aquatic species occur, consider ground-disturbing activities on a case by case basis, and implement SOPs to ensure minimal erosion or impact to the aquatic habitat. • Within riparian areas, do not use vehicle equipment off of established roads. • Outside of riparian areas, allow driving off of established roads only on slopes of 20 percent or less. • Except in emergencies, land helicopters outside of riparian areas. • Within 150 feet of wetlands or riparian areas, do not fuel/refuel equipment, store fuel, or perform equipment maintenance (locate all fueling and fuel storage areas, as well as service landings outside of protected riparian areas). • Prior to helicopter fueling operations prepare a transportation, storage, and emergency spill plan and obtain the appropriate approvals; for other heavy equipment fueling operations use a slip-tank not greater than 250 gallons. Prepare spill containment and cleanup provisions for maintenance operations. <p>Conservation Measures Related to Revegetation Treatments</p> <ul style="list-style-type: none"> • Outside riparian areas, avoid hydro-mulching within buffer zones established at the local level. This precaution will limit adding sediments and nutrients and increasing water turbidity. • Within riparian areas, engage in consultation at the local level to ensure that revegetation activities incorporate knowledge of site-specific conditions and project design. • Maintain equipment used for transportation, storage, or application of chemicals in a leak-proof condition. • Do not store or mix herbicides, or conduct post-application cleaning within riparian areas. • Ensure that trained personnel monitor weather conditions at spray times during application. • Strictly enforce all herbicide labels. • Do not broadcast spray within 100 feet of open water when wind velocity exceeds 5 mph. • Do not broadcast spray when wind velocity exceeds 10 mph. • Do not spray if precipitation is occurring or is imminent (within 24 hours). • Do not spray if air turbulence is sufficient to affect the normal spray pattern.

Species/Species Group	Programmatic Conservation Measures
Aquatic Animals (cont.)	<ul style="list-style-type: none"> • Do not broadcast spray herbicides in riparian areas that provide habitat for TEP aquatic species. Determine appropriate buffer distances at the local level to ensure that overhanging vegetation that provides habitat for TEP species is not removed from the site. Buffer distances provided as conservation measures in the assessment of effects to plants (Chapter 4 of the BA) and fish and aquatic invertebrates should be consulted as guidance (Table 5-5 of the BA). • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats.
Morro Shoulderband Snail	<ul style="list-style-type: none"> • When conducting herbicide treatments in or near Morro shoulderband snail habitat, avoid the use of fluroxypyr, where feasible. If pre-treatment surveys determine the presence of the Morro shoulderband snail. Do not use fluroxypyr to treat vegetation. • Do not broadcast spray fluroxypyr in habitats occupied by Morro shoulderband snails, and do not broadcast spray fluroxypyr in areas adjacent to Morro shoulderband snail habitat under conditions when spray drift onto the identified habitat is likely. • Survey treatment sites within the range of the Morro shoulderband snail for the presence of the snail, prior to formulating treatment programs (should be conducted by a qualified biologist). • Do not burn, conduct mechanical treatments, or use broad-spectrum herbicides in habitats occupied by snails. • Do not perform herbicide treatments in habitats occupied by snails that will result in a substantial reduction of plant (and especially native plant) cover; where feasible, spot treat vegetation rather than spraying.
Butterflies and Moths	<ul style="list-style-type: none"> • When conducting herbicide treatments in or near habitat used by TEP butterflies or moths, avoid the use of fluroxypyr, where feasible. If pre-treatment surveys determine the presence of TEP butterflies or moths, do not use fluroxypyr to treat vegetation. • Use an integrated pest management approach when designing programs for managing pest outbreaks. • Survey treatment areas for TEP butterflies/moths and their host/nectar plants (suitable habitat) at the appropriate times of year. • Minimize the disturbance area with a pre-treatment survey to determine the best access routes. Avoid areas with butterfly/moth host plants and/or nectar plants. • Minimize OHV activities on sites that support host and/or nectar plants. • Carry out vegetation removal in small areas, creating openings of 5 acres or less in size. • Wash equipment before it is brought into the treatment area. • Use a seed mix that contains host and/or nectar plant seeds for road/site reclamation. • To protect host and nectar plants from herbicide treatments, follow recommended buffer zones and other conservation measures for TEP plants species when conducting herbicide treatments in areas where populations of host and nectar plants occur.

Species/Species Group	Programmatic Conservation Measures
Butterflies and Moths (cont.)	<ul style="list-style-type: none"> • Do not broadcast spray herbicides in habitats occupied by TEP butterflies or moths; do not broadcast spray herbicides in areas adjacent to TEP butterfly/moth habitat under conditions when spray drift onto the habitat is likely.
Valley Elderberry Longhorn Beetle	<ul style="list-style-type: none"> • Survey proposed treatment sites within the range of the valley elderberry longhorn beetle for the presence of the beetle and its elderberry host plant (should be conducted by a qualified biologist). • When conducting herbicide treatment in or near habitat used by the valley elderberry longhorn beetle, avoid the use of fluroxypyr, where feasible. If pre-treatment surveys determine the presence of valley elderberry longhorn beetles, do not use fluroxypyr to treat vegetation. • To protect host elderberry plants from herbicide treatments, follow recommended buffer zones and other conservation measures for TEP plants species, as listed in Chapter 4 of the BA, when conducting herbicide treatments in areas where populations of elderberry occur. • Do not broadcast spray herbicides in suitable valley elderberry longhorn beetle habitat; do not broadcast spray herbicides in areas adjacent to suitable habitat under conditions when spray drift onto the habitat is likely.
Amphibians and Reptiles	<ul style="list-style-type: none"> • Survey all areas that may support TEP amphibians and/or reptiles prior to treatments. • In habitats where aquatic herpetofauna occur, implement all conservation measures identified for aquatic organisms in Chapter 4 of the BA. • Do not broadcast spray herbicides in riparian areas or wetlands that provide habitat for TEP herpetofauna. • In desert tortoise habitat, conduct herbicide treatments during the period when desert tortoises are least active. • To the greatest extent possible, avoid desert tortoise burrows during herbicide treatments. • When conducting herbicide treatments in upland areas adjacent to aquatic or wetland habitats that support TEP herpetofauna, do not broadcast spray during conditions under which off-site drift is likely. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats that support TEP herpetofauna.
Steller's and Spectacled Eider	<ul style="list-style-type: none"> • Prior to developing management plans associated with treatment activities, assess whether Steller's or spectacled eiders are likely to use areas proposed for treatment for nesting or brood-rearing activities. • Do not conduct vegetation treatments during the breeding season (as determined by a qualified wildlife biologist).
Northern Aplomado Falcon	<ul style="list-style-type: none"> • Prior to conducting vegetation treatments, survey the project area for northern aplomado falcon nests. • Where surveys detect breeding birds, do not implement herbicide treatments during the breeding season.

Species/Species Group	Programmatic Conservation Measures
Northern Aplomado Falcon (cont.)	<ul style="list-style-type: none"> • Avoid conducting vegetation treatments in northern aplomado falcon habitat during the nesting period. • Avoid broadcast spraying herbicides in areas where future falcon nesting trees occur.
Yuma Clapper Rail	<ul style="list-style-type: none"> • Conduct surveys prior to vegetation treatments within potential or suitable habitat. • Where surveys detect birds, do not implement treatments during the breeding season. • In habitats where Yuma clapper rails occur, follow the riparian/aquatic habitat protection measures discussed in Chapter 5. • Closely follow all application instructions and use restrictions on herbicide labels (including aquatic and wetland habitat use restrictions).
Western Snowy Plover, Piping Plover, Least Tern (interior), and Streaked Horned Lark	<ul style="list-style-type: none"> • Survey for western snowy plovers, piping plovers, interior least terns, and streaked horned larks (and their nests) in suitable areas of proposed treatment areas, prior to developing treatment plans. • Do not treat vegetation in nesting areas during the breeding season (as determined by a qualified biologist). • Do not allow human (or domestic animal) disturbance within ¼ mile of nest sites during the nesting period. • Conduct beachgrass treatments during the plant's flowering stage, during periods of active growth. • Closely follow all application instructions and use restrictions on herbicide labels (including aquatic and wetland habitat use restrictions).
Least Bell's Vireo, Inyo California Towhee, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo	<ul style="list-style-type: none"> • Conduct surveys prior to vegetation treatments within potential or suitable habitat. • Where surveys detect birds, do not broadcast spray herbicides. • Do not conduct vegetation treatments within ½ mile of known nest sites or unsurveyed suitable habitat during the breeding season (as determined by a qualified wildlife biologist). • Adjust spatial and temporal scales of treatments so that not all suitable habitat is affected in any given year. • Following treatments, replant or reseed treated areas with native species, if needed. • Closely follow all application instructions and use restrictions on herbicide labels (including aquatic and wetland habitat use restrictions).
Gunnison Sage-grouse and Greater Sage-grouse (Bi-State DPS)	<ul style="list-style-type: none"> • Conduct surveys prior to vegetation treatments within potential or suitable habitat. • Where surveys detect birds, or in known habitats, do not broadcast spray herbicides. • Coordinate with state wildlife management agencies prior to conducting vegetation treatments in suitable sage-grouse habitat. • Avoid conducting vegetation treatments within 4 miles of known lek sites. If vegetation treatments are necessary within 4 miles of a lek, treatments must demonstrate a net conservation value to the species. • Avoid conducting vegetation treatments in areas that contain features of sage-grouse winter habitat.

Species/Species Group	Programmatic Conservation Measures
Gunnison Sage-grouse and Greater Sage-grouse (Bi-State DPS) (cont.)	<ul style="list-style-type: none"> • Where local data on actual distribution of nesting habitats are available, the 4-mile buffer may be modified as appropriate if the project impacts will still not contribute to a negative effect on the species. Additionally, temporal restrictions may also be modified if local data indicate a different window of occupancy by breeding birds and chicks. Where such data are lacking, strict adherence to the programmatic standards should be enforced. • Adjust spatial and temporal scales of treatments so that not all suitable habitat is affected in any given year. • Following treatments, replant or reseed treated areas with native species, if needed. • Closely follow all application instructions and use restrictions on herbicide labels.
Lesser Prairie-chicken	<ul style="list-style-type: none"> • Conduct surveys prior to vegetation treatments within potential or suitable habitat. • Where surveys detect birds, or in known habitats, do not broadcast spray herbicides. • During the critical period of nesting and brood rearing (March 1st to July 15th) avoid conducting vegetation treatments within 3 miles of detections (i.e., locations where Lesser Prairie Chickens have been detected within the last 5 years) or suitable habitat. If vegetation treatments are necessary within 3 miles of a detection or suitable habitat and demonstrate a net conservation value to the species, they may be permitted following completion of a local-level consultation. • Adjust spatial and temporal scales of treatments so that not all suitable habitat is affected in any given year. • Following treatments, replant or reseed treated areas with native species, if needed. • Closely follow all application instructions and use restrictions on herbicide labels.
Coastal California Gnatcatcher	<ul style="list-style-type: none"> • Prior to implementing vegetation treatments, survey areas in which treatments would occur for coastal California gnatcatchers. • Where gnatcatchers occur, do not conduct treatments during the breeding season (as determined by a qualified wildlife biologist). • Revegetate coastal sage habitats with native species. • Do not broadcast spray herbicides in areas where coastal California gnatcatchers occur.
California Condor	<ul style="list-style-type: none"> • Restrict human activity within 1.5 miles of California condor nest sites.
Marbled Murrelet, Northern Spotted Owl, and Mexican Spotted Owl	<ul style="list-style-type: none"> • Survey for marbled murrelets, northern spotted owls, and Mexican spotted owls (and their nests) on suitable proposed treatment areas, prior to developing treatment plans. • Do not allow human disturbance within ¼ mile of protected activity centers during the nesting period (as determined by a local biologist). • Protect and retain the structural components of known or suspected nest sites during treatments; evaluate each nest site prior to treatment and protect it in the most appropriate manner.

Species/Species Group	Programmatic Conservation Measures
Marbled Murrelet, Northern Spotted Owl, and Mexican Spotted Owl (cont).	<ul style="list-style-type: none"> • Maintain sufficient dead and down material during treatments to support spotted owl prey species (minimums would depend on forest types, and should be determined by a wildlife biologist). • Do not conduct treatments that alter forest structure in old-growth stands. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats, particularly marine habitats where murrelets forage for prey.
Whooping Crane	<ul style="list-style-type: none"> • Do not allow human disturbance within 1 mile of occupied whooping crane habitat (nesting, roosting foraging) or potential nesting habitat where whooping cranes have been observed within the past 3 years during periods when cranes may be present (as determined by a qualified biologist). • Do not conduct herbicide treatments in whooping crane habitat during the breeding season. • Closely follow all application instructions and use restrictions on herbicide labels; in wetlands and riparian habitats (including aquatic and wetland habitat use restrictions).
Pygmy Rabbit	<ul style="list-style-type: none"> • Prior to treatments, survey all suitable habitat for pygmy rabbits. • Address pygmy rabbits in all management plans prepared for treatments within the range of the species' historical habitat. • Where feasible, spot treat vegetation in pygmy rabbit habitat rather than broadcast spraying.
Columbian White-tailed Deer	<ul style="list-style-type: none"> • Prior to treatments, survey for evidence of Columbian white-tailed deer use of areas in which treatments are proposed to occur. • Address the protection of Columbian white-tailed deer in local management plans developed in association with treatment programs. • In areas that are likely to support Columbian white-tailed deer, protect riparian areas from degradation by avoiding them altogether, or utilizing SOPs. Consult Chapter 5 for appropriate conservation measures to be used in protected riparian areas. • Closely follow all application instructions and use restrictions on herbicide labels (including aquatic and wetland habitat use restrictions). • Avoid broadcast spray treatments in areas where Columbian white-tailed deer are known to forage.
Lesser and Mexican Long-nosed Bat	<ul style="list-style-type: none"> • Prior to treatments, survey all potentially suitable habitat for the presence of bats or their nectar plants. • At the local level, incorporate protection of lesser and Mexican long-nosed bats into management plans developed for proposed treatment programs. • Instruct all field personnel on the identification of bat nectar plants and the importance of their protection. • Protect nectar plants from modification by treatment activities to the greatest extent possible. Do not remove nectar plants during treatments. Avoid driving over plants.

Species/Species Group	Programmatic Conservation Measures
Lesser and Mexican Long-nosed Bat (cont.)	<ul style="list-style-type: none"> • To protect nectar plants and roost trees from herbicide treatments, follow recommended buffer zones for the herbicides, and other conservation measures for TEP plant species in areas where populations of nectar plants and roost trees occur. • If conducting spot treatments of herbicides in lesser or Mexican long-nosed bat habitats, avoid potential roost sites.
Sonoran Pronghorn	<ul style="list-style-type: none"> • Prior to treatments, survey all suitable habitat in areas proposed for treatment for Sonoran pronghorns. • Avoid fawning areas during treatments. • Closely follow all application instructions and use restrictions on herbicide labels (including aquatic and wetland habitat use restrictions). • Avoid broadcast spraying herbicides in key pronghorn foraging areas.
Hualapai Mexican Vole, Amargosa Vole, Preble's Meadow Jumping Mouse, New Mexico Meadow Jumping Mouse, Riparian Woodrat, and Buena Vista Lake Ornate Shrew	<ul style="list-style-type: none"> • Survey suitable habitat for these species prior to developing treatment programs at the local level. <p>In areas where surveys indicate that the Hualapai Mexican vole, Amargosa vole, Preble's meadow jumping mouse, New Mexico meadow jumping mouse, riparian woodrat, or Buena Vista Lake ornate shrew occur:</p> <ul style="list-style-type: none"> • Address these species in all management plans prepared for treatments within areas that contain habitat for these species. • Use manual spot applications of herbicides rather than broadcast treatments. • Closely follow all application instructions and use restrictions on herbicide labels (including aquatic and wetland habitat use restrictions).
Northern Idaho Ground Squirrel	<ul style="list-style-type: none"> • Prior to conducting treatments, survey the area to be treated for northern Idaho ground squirrels. • At the local level, address northern Idaho ground squirrels and their habitat when developing management plans for proposed treatments. • Where squirrels are detected, conduct vegetation treatments during the hibernation season, where feasible. • Design treatments so that only a portion of northern Idaho ground squirrel habitat is in a state of recovery at any one time. • Design treatments to avoid injury to native bunchgrasses in northern Idaho ground squirrel habitat; consult plant buffer distances and other conservation measures for sensitive plants in Chapter 4 for guidance.
Woodland Caribou	<ul style="list-style-type: none"> • At the local level, prepare a management plan for all proposed treatment activities that could potentially occur on land utilized by woodland caribou. This management plan must be completed with the assistance of a wildlife biologist and a forest ecologist, and must specifically address caribou and caribou habitat. • Time major herbicide treatments in woodland caribou habitats such that they do not occur during the season when caribou rely on the treatment area for forage.
Grizzly Bear	<ul style="list-style-type: none"> • Within the Recovery Zone, ensure that all treatment activities comply with the <i>Interagency Grizzly Bear Guidelines</i> (Interagency Grizzly Bear Committee 1987) and the <i>Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem</i> (Interagency Conservation Strategy Team 2003).

Species/Species Group	Programmatic Conservation Measures
Grizzly Bear (cont.)	<p>To minimize the potential for displacement/mortality risk during treatments:</p> <ul style="list-style-type: none"> • Within the Recovery Zone (defined in <i>Grizzly Bear Recovery Plan</i>, USFWS 1993), ensure that any vehicular travel off highway or on restricted roads adheres to access standards/directions as provided in local or regional interagency agreements, biological opinions, or local land use plans. • Within the Recovery Zone, do not conduct vegetation treatment activities in riparian meadows and stream corridors between April 1 and July 1, or complete these activities in 1 day. • Within the Recovery Zone, do not implement vegetative treatments that would substantially change the vegetative community in huckleberry producing sites. <p>To minimize the potential for habituation/human conflict:</p> <ul style="list-style-type: none"> • Within the Recovery Zone, ensure that all treatment activities adhere to interagency grizzly bear guidelines and standards for sanitation measures and storage of potential attractants, and enforce food storage and garbage disposal stipulations. • Ensure all workers at treatment sites are aware of appropriate personal safety measures and behavior in grizzly bear habitat. • Within the Recovery Zone, do not plant or seed highly palatable forage species near roads or facilities used by humans.
Canada Lynx	<ul style="list-style-type: none"> • Prior to vegetation treatments, map lynx habitat within areas in which treatments are proposed to occur. Identify potential denning and foraging habitat, and topographic features that may be important for lynx movement (major ridge systems, prominent saddles, and riparian corridors). • Design vegetation treatments in lynx habitat to approximate historical landscape patterns and disturbance processes. • Where possible, keep linear openings out of mapped potential habitat and away from key habitat components, such as denning areas. • When planning vegetation treatments, minimize the creation of linear openings (fire lines, access routes, and escape routes) that could result in permanent travel ways for competitors and humans. • Obliterate any linear openings constructed within lynx habitat in order to deter future uses by humans and competitive species. • Ensure that no more than 30 percent of lynx habitat within a Lynx Analysis Unit (see Ruediger et al. 2000) would be in an unsuitable condition at any time. • Give particular consideration to amounts of denning habitat, condition of summer and winter foraging habitat, as well as habitat linkages, to ensure that that treatments do not negatively impact lynx. If there is less than 10 percent lynx habitat in a Lynx Analysis Unit, defer vegetation treatments that would delay development of denning habitat structure. Protect habitat connectivity within and between Lynx Analysis Units.

Species/Species Group	Programmatic Conservation Measures
Kangaroo Rats, Utah Prairie Dog, and Black-footed Ferret	<ul style="list-style-type: none"> • Prior to conducting vegetation treatments, survey areas scheduled to receive treatments for listed kangaroo rats, Utah prairie dogs, and black-footed ferrets. • Incorporate these species and their habitat into management plans developed for treatment activities. • Avoid vegetation treatments during drought conditions. • Where possible, perform treatments during the hibernation period.
Bighorn Sheep	<ul style="list-style-type: none"> • Prior to treatment activities, survey suitable habitat for evidence of use by bighorn sheep. • When planning vegetation treatments, minimize the creation of linear openings that could result in permanent travel ways for competitors and humans. • Obliterate any linear openings constructed within bighorn sheep habitat in order to deter future uses by humans and competitive species. • Where feasible, time vegetation treatments such that they do not coincide with seasonal use of the treatment area by bighorn sheep. • Do not broadcast spray herbicides in key bighorn sheep foraging habitats.
Gray Wolf	<ul style="list-style-type: none"> • Avoid human disturbance and/or associated activities within 1 mile of a den site during the breeding period (as determined by a qualified biologist). • Avoid human disturbance and/or associated activities within 1 mile of a rendezvous site during the breeding period (as determined by a qualified biologist).

Appendix C

Pesticide-Specific Buffers for TEP plants

Aminopyralid

Ground Application

- If using a low boom at the typical application rate, do not apply within 100 feet of TEP terrestrial plants¹.
- If using a low boom at the maximum application rate or a high boom at the typical application rate, do not apply within 400 feet of TEP terrestrial plants.
- If using a high boom at the maximum application rate, do not apply within 600 feet of TEP terrestrial plants.

Aerial Application Over Forested Land

- Do not apply by airplane at the typical application rate within 1,700 feet of TEP terrestrial plants.
- Do not apply by airplane at the maximum application rate within 1,900 feet of TEP terrestrial plants.
- Do not apply by helicopter at the typical or maximum application rate within 300 feet of TEP terrestrial plants.

Aerial Application Over Non-Forested Land

- Do not apply by airplane at the typical application rate within 1,800 feet of TEP terrestrial plants.
- Do not apply by airplane at the maximum application rate within 2,000 feet of TEP terrestrial plants.
- Do not apply by helicopter at the typical application rate within 1,600 feet of TEP terrestrial plants.
- Do not apply by helicopter at the maximum application rate within 1,700 feet of TEP terrestrial plants.

General

- In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions).

Fluroxypyr

Ground Application

- If using a low boom at the typical application rate, do not apply within 100 feet of TEP terrestrial plants.
- If using a low boom at the maximum application rate, do not apply within 600 feet of TEP terrestrial plants.
- If using a high boom at the typical application rate, do not apply within 400 feet of TEP terrestrial plants.
- If using a high boom at the maximum application rate, do not apply within 700 feet of TEP terrestrial plants.

Aerial Application Over Forested Land

- Do not apply by airplane at the typical application rate within 1,200 feet of TEP terrestrial plants.
- Do not apply by airplane at the maximum application rate within 1,400 feet of TEP terrestrial plants.
- Do not apply by helicopter at the typical application rate within 200 feet of TEP terrestrial plants.
- Do not apply by helicopter at the maximum application rate within 400 feet of TEP terrestrial plants.

Aerial Application Over Non-Forested Land

- Do not apply by airplane at the typical application rate within 1,100 feet of TEP terrestrial plants.
- Do not apply by helicopter at the typical application rate within 900 feet of TEP terrestrial plants.
- Do not apply by airplane or helicopter at the maximum application rate within 1,500 feet of TEP terrestrial plants.

General

- In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions).

¹ Note that buffers for terrestrial plants may be appropriate for plant species that root in water but have foliage extending above the surface of the water.

Rimsulfuron

Ground Application

- If using a low boom at the typical application rate, do not apply within 200 feet of TEP terrestrial plants.
- If using a low boom at the maximum application rate or a high boom at the typical application rate, do not apply within 400 feet of TEP terrestrial plants.
- If using a high boom at the maximum application rate, do not apply within 700 feet of TEP terrestrial plants.

Aerial Application Over Forested Land

- Do not apply by airplane at the typical application rate within 1,600 feet of TEP terrestrial plants.
- Do not apply by airplane at the maximum application rate within 1,700 feet of TEP terrestrial plants.
- Do not apply by helicopter at the typical or application rate within 300 feet of TEP terrestrial plants.

Aerial Application Over Non-Forested Land

- Do not apply by airplane at the typical application rate within 1,600 feet of TEP terrestrial plants.
- Do not apply by airplane at the maximum application rate within 1,900 feet of TEP terrestrial plants.
- Do not apply by helicopter at the typical application rate within 1,400 feet of TEP terrestrial plants.
- Do not apply by airplane or helicopter at the maximum application rate within 1,600 feet of TEP terrestrial plants.

General

- In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions).
- Do not use in watersheds where annual precipitation exceeds 50 inches.
- In watersheds where annual precipitation exceeds 10 inches, prior to use of rimsulfuron conduct a local-level analysis of site conditions and develop suitable conservation measures for protection of TEP plant species from surface runoff.

If a tank mix of one of these chemicals with another approved herbicide is desired, an additional assessment of potential effects to non-target TEP species must be made with the assumption that effects of the herbicides are at a minimum additive. Larger buffers may be warranted.

At the local level, the BLM must make determinations as to the suitability of herbicide treatments for the populations of TEP species that are managed by local offices. The following information should be considered: the timing of the treatment in relation to the phenology of the TEP plant species; the intensity of the treatment; the duration of the treatment; and the tolerance of the TEP species to the treatment. When information about species tolerance is unavailable or is inconclusive, local offices must assume an adverse effect to plant populations, and protect those populations from direct or indirect exposure to the treatment in question.

Appendix D

From Chapter 3 of the Biological Assessment

SPECIAL STATUS SPECIES MANAGEMENT CONSULTATION PROTOCOL

There are typically two “tiers” of action when a federal agency adopts or approves a management plan or strategy that will be used to guide the development and implementation of future projects. The first tier of action involves adopting the broad management plan or strategy, and the second tier involves implementing site-specific actions. Both tiers require consultation under Section 7 of the ESA.

Consultation with the Services is required when any action authorized, funded, or carried out by a federal agency may affect any ESA listed species or critical habitat that has been designated for those species. This chapter identifies the steps that will be taken by the BLM at the national and local level to ensure that their actions requiring authorization or approval by the Services are consistent with guidance provided in the 2015 PEIS, this BA, ERAs (AECOM 2014a-c), *Endangered Species Consultation Handbook* (USFWS and NMFS 1998), BLM Manual 6840 (*Special Status Species Management*), BLM Handbook H-1601-1 (*Land Use Planning Handbook*), and consultation with the Services as part of the preparation of the 2015 PEIS and BA. In particular, the focus of this protocol is to ensure that any action authorized, funded, or carried out by the BLM will not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species. If followed, these steps should ensure that the conservation needs of TEP species and other special status species are met.

This BA and the PEIS evaluate the potential for herbicide treatments using aminopyralid, fluroxypyr, and rimsulfuron to affect TEP species and designated and proposed critical habitat on BLM lands in the western U.S., including Alaska. These documents establish standards, guidelines, and design criteria to which future vegetation treatment actions must adhere. Programmatic consultation increases the efficiency of the Section 7 consultation process because much of the effects analysis is completed upfront and the effects of future actions are broadly accounted for. For example, much of the analysis of the effects of the use of herbicides on species of concern has been completed as part of this BA and risk assessments; this information can be incorporated into the assessment for local projects. Programmatic consultation also minimizes the potential “piecemeal” effects than can occur when evaluating individual projects out of context of the complete agency program.

Programmatic Level Consultation

As part of the first phase of consultation, the Services will develop a Biological Opinion that analyzes the potential landscape-level effects that may result from implementing the proposed action. For the 2015 PEIS and this BA, there is substantial temporal and spatial uncertainty about future actions, resulting in corresponding uncertainty regarding potential effects at the local level. As a result, a second phase is required that involves development of appropriate project-specific documentation that addresses the specific effects of individual projects proposed by BLM field offices.

An important feature of the first phase of consultation is the development of design criteria or standards that can be used to guide future projects. Design criteria are developed through a five-step process:

- Identify the conservation needs of each species.
- Identify the threats to each listed species.
- Identify the species conservation or management unit.

- Identify the species conservation goals within the context of the BLM’s programs and authorities.
- Develop conservation/management strategies for implementing future activities (design criteria; conservation measures).

These five elements have been incorporated into this BA. This BA helps to streamline the consultation process by completing a portion of the effects analysis early in the consultation process, and providing conservation measures that reduce potential adverse effects to listed species and which will be applied agency-wide.

Local-Level Consultation

Prior to implementation of specific vegetation treatment projects that utilize aminopyralid, fluroxypyr, and rimsulfuron, BLM field offices will consult with the Services at the local level on any action that may affect ESA- listed resources. This process will include a site-specific analysis of potential effects to TEP species from proposed vegetation treatment actions. At this level, the BLM will be able to determine more specifically which species might be impacted by the proposed treatments, the nature and extent of potential impacts, and what conservation measures are needed to reduce potential adverse effects to these species. Using the conservation measures in this BA as a starting point, the BLM will develop a final list of conservation measures during the local-level consultation. BLM field offices will tailor the national protective measures based on local conditions and the habitat needs of the particular TEP species that could be affected by the treatments. The conservation measures in this document are the minimum standards necessary for a project to fall under this programmatic BA. If the BLM wishes to modify a project and its conditions and/or parameters while still maintaining the safety of the identified TEP species, the BLM will coordinate with the Services at the local level through informal consultation. However, when a project deviates from/reduces the minimum protections identified in the programmatic BA and adequate protections cannot be afforded to the species in question, formal consultation must be initiated.

Tracking Local-Level Consultation

In order to track whether consultations are occurring at the local level, the BLM is expanding Section V of Pesticide Use Proposals (“Sensitive Aspects and Precautions”) prepared by field offices to include more specific questions about coordination with USFWS and NMFS when an herbicide application for vegetation treatments will overlap a site with TEP species or designated critical habitat. The new questions are as follows:

1. Are there “Special Status Species” in the proposed treatment area?
 - A. If “No” – no further questions.
 - B. If “Yes” – Are any of the Special Status Species also federally threatened, endangered or proposed?
 - a. If “No” – no further questions.
 - b. If “Yes” – Did your Field Office coordinate with the local Fish and Wildlife Service office and/or NMFS?
 - I. If “No” – explain.
 - II. If “Yes” – was Section 7 consultation completed?
 1. If “No” – explain.
 2. If “Yes” – what extent of Section 7 consultation was completed?
 - “Formal Consultation”
 - “Informal Consultation”
 - “Technical Assistance”
- 2b. Describe the outcome of the consultation.

The BLM enters information from Pesticide Use Proposals into the National Invasive Species Information Management System, where the BLM tracks all pesticide use data on BLM-administered lands and produces a yearly report of its pesticide use. This information will assist the BLM in tracking all of its herbicide treatment projects that have resulted on additional site-specific consultation under Section 7 of the ESA.

Example of herbicide treatments that would require site-specific analysis

[from Chapter 2 of the Biological Assessment]

Tank Mixes

The BLM used a mixture of two or more herbicides to treat approximately 20 percent of public lands during 2001 through 2011. The use of mixtures of herbicides, along with the addition of an adjuvant (when stated on the label), may be an efficient use of equipment and personnel. However, knowledge of both products and their interactions is necessary to avoid unintended negative effects. In general, herbicide interactions can be classified as additive, synergistic, or antagonistic:

- Additive effects occur when mixing two herbicides produces the same response as the combined effects of each herbicide applied alone. The products neither hurt nor enhance each other.
- Synergistic responses occur when two herbicides provide a greater response than the added effects of each herbicide applied separately.
- Antagonistic responses occur when two herbicides applied together produce less control than if you applied each herbicide applied separately.

While a quantitative evaluation of all of these mixtures is beyond the scope of the ERAs prepared for the 2015 PEIS and this BA, a qualitative evaluation may be made if it is assumed that the products in the tank mix will act in an additive manner. The predicted RQs for two active ingredients can be summed for each individual exposure scenario to see if the combined impacts result in additional RQs elevated above the corresponding LOCs.

Based on simulations of tank mixes in risk assessments completed for the 2007 PEIS, and a similar exercise completed for mixtures involving the active ingredients being considered in this BA, the combined toxicity of multiple active ingredients is specific to each tank mix. Aquatic plants and TEP terrestrial plants may be at greater risk from the mixed application than from the active ingredient alone. However, in some cases all receptors are at greater risk, and precautions (e.g., increased buffer zones, decreased application rates) should be taken to reduce risk. There is some uncertainty in this evaluation because herbicides in tank mixes may not interact in an additive manner. Thus, the evaluation may overestimate risk if the interaction is antagonistic, or it may underestimate risk if the interaction is synergistic. In addition, other products may also be included in tank mixes that may contribute to the potential risk.

Selection of tank mixes, like adjuvants, is under the control of BLM land managers. To reduce uncertainties and potential negative impacts, it is required that land managers follow all label instructions and abide by any warnings, including conservation measures and SOPs identified in this BA and in the 2007 BA. Labels for all products in the tank mix should be thoroughly reviewed, and

mixtures with the least potential for negative effects should be selected, particularly for applications with increased potential for risk. Use of a tank mix under these conditions increases the level of uncertainty in risk to the environment. Measures to mitigate for risks associated with use of tank-mixed products, such as buffers between treatment areas and TEP species and their habitats, may require analysis at the local level. These local-level analysis may include use of information in ERAs and local site conditions (e.g., soil type, annual precipitation, vegetation type, treatment method, application rate, and potential additive effects from multiple active ingredients) to more precisely calculate buffer distances to minimize effects to TEP species.